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ABSTRACT

Case studies of eight children with speech and language impairments are presented in a review of the intervention efforts at the Demonstration Center for Preschool Special Education (DCPSE) in Puerto Rico. Five components of the intervention model are examined: social medical history, intelligence, motor development, socio-emotional development, and speech-language development. Data are presented in terms of characteristics of the child before attending the Center (input), while attending the Center (process), upon leaving the Center (product), and after leaving the Center (follow-up). Results produced seven recommendations, including the need to focus on perceptual motor development concurrently with stress on speech-language therapy; the importance of providing rich experiences at an early age to bolster self-esteem; and the usefulness of the Vineland Adaptive Behavior Scales to assess various areas of development. (CL)

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DEVELOPMENTAL VARIABLES AND SPEECH-LANGUAGE IN A SPECIAL EDUCATION INTERVENTION MODEL

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DEVELOPMENTAL VARIABLES AND SPEECH-LANGUAGE IN AN INTERVENTION MODEL AT HUC*

There is great need for research on the speech-language impaired population. Models of social reinforcement (Schiefelbusch, 1978) or behavioral and ecological (Mc Lean and Mc Lean, 1978), Ruder (1978) and Bruner (1975), provide much of the information being used for planning and developing school programs, curricula and services for children with this impairment. According to Ruder (1978), one of the limitations of the reinforcement model of services is that it is difficult to generalize and transfer the learned behavior to other settings, specially the regular classrooms. Nevertheless, the transfer of concepts and skills allow the child to use his/her expressive language more adequately and interact effectively for a better social adjustment and mainstreaming, which is one of the purposes of Public Law 94-142. Then, questions on the effectiveness of services based on language development models as well as questions on the relationship of factors that are important constituents of these models need to be answered through research.

Schery's (1985) study of correlates of language development in language disordered children in California is one of the very few research studies reported in this field in the United States. Her study was based on data collected from a sample of children ages 3 to 16. She reports that the variables studied which she categorized in the domains of demographic/background, physical development, social personality and language academic failed to account well for either language performance at program entry or for relative language gain.

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*Humacao University College.

Then, what factors and what models of services of language development are effective for transfering learned behavior to regular classrooms and for better social adjustment? The following progress report of a study attempts to answer or to bring some insights for answering those questions.

Last year (1986) Cruz and Ayala started a research project at a Demonstration Center for Preschool Special Education (DCPSE) located at the Humacao University College (HUC Campus) in the Island of Puerto Rico. The Center gives services to severely speech language children from ages three to eight since it was established in 1980. These researchers have stated questions related to the intervention model for improving child's speech language and to the relation between the different components of this intervention model. These components become the characteristics to be studied.

The following are the specific questions stated:

1. What is the relation between socio-emotional skills, intelligence, fine and gross motor development, and medical history with speech-language among the children attended at the Center.
2. How are the development factors mentioned in No. 1 related before, during and after participation in the Center with speech-language.
3. How effective have the intervention model services been in improving speech-language (receptive and expressive) of the severely impaired speech-language children?
4. What changes in speech-language, socio-emotional, psychological, and fine and gross motor skills have the children experienced during treatment at the Center.

The hypotheses related to these questions are:

1. Ho There is no significant difference in the relationship between medical history and language development in participants before during and after receiving services at the DCPSE.
2. Ho There is no significant difference in interaction between intelligence, socio-emotional, motor skills development with speech language development before, during, upon, and after receiving services at the DCPSE.
3. Ho The intervention model services has not been effective in improving speech-language (receptive and expressive) in children diagnosed as severely impaired in speech language.

Variables

The following are the characteristics or components of the intervention model and how they have been defined for this study:

1. Social Medical History - Prenatal and perinatal characteristics, physical and speech-language development, health problems and the result of neurological and audiological tests that were administered before receiving the services provided by the DCPSE.
2. Intelligence - Results obtained on a formal psychological test to determine the child's mental capacity.
3. Motor Development - Gross and fine skills as evaluated by the occupational therapyst.
4. Socio-emotional development - The child's self-esteem, social interest, identification (with particular others), group identification, egocentricity, power, complexity, minority identification, realism for size, and preference as in Ziller's (1967) instrument. The degree of socialization as in Vineland Adaptive Behavior Scales and the acceptance by peers as observed in sociometry matrix analysis.
5. Development for speech-language - Weaknesses and strengths in speech-language as identified in evaluations by the speech pathologist, teacher and parents on communication skills and length of utterances.

The following chart illustrates the classification of the data in those areas:

Before attending the Center	While receiving Services at the Center	Upon leaving the Center	After leaving the Center
Input	Process	Product	Follow-up
1. Child characteristics a. pre-natal b. perinatal	1. Formative specialist's evaluations	1. Psychologist evaluation	1. Change in a.vocabulary b.articulation c.reception d.expression
2. Health Problem a.of the mother during the pregnancy b.of the child during and after birth	2. Speech and occupational therapy	2. Social skills evaluation	2. Social skills a. social-adjustments b. self-steem c. acceptance by classroo peers
3. Characteristics of speech-language before entering the Center	3. Interviews to children and parents	3. Change in Speech a.vocabulary b.articulation c.reception d.expression	
4. Intelligence			
5. Motor skills			
6. Social-emotional			

Description of the Intervention Model

What are the sources of the data for this study? A brief description of the DCPSE intervention model follows.

The center was created in 1980 with funds of the Early Childhood Education Program. It's purpose was to provide an effective educational program for handicapped preschool children geared towards lessening the child's dependency level and allow him/her to cope with formal educational settings in the regular school or in special education programs. Since its inception, it has provided services to a total of 46 children from ages 3 to 8 with severe speech language impairments. Of these, four are currently receiving services and 33 or seventy nine percent (79%) have been mainstreamed into regular classrooms. The Center is the only one of its kind in the country that offers preschool education for severely speech impaired children.

The services offered at the DCPSE include group and individualized academic instruction, speech and occupational therapy and psychological and social work counseling for the families. (See Figure 1). A team of professionals -a special education teacher and teacher aide,

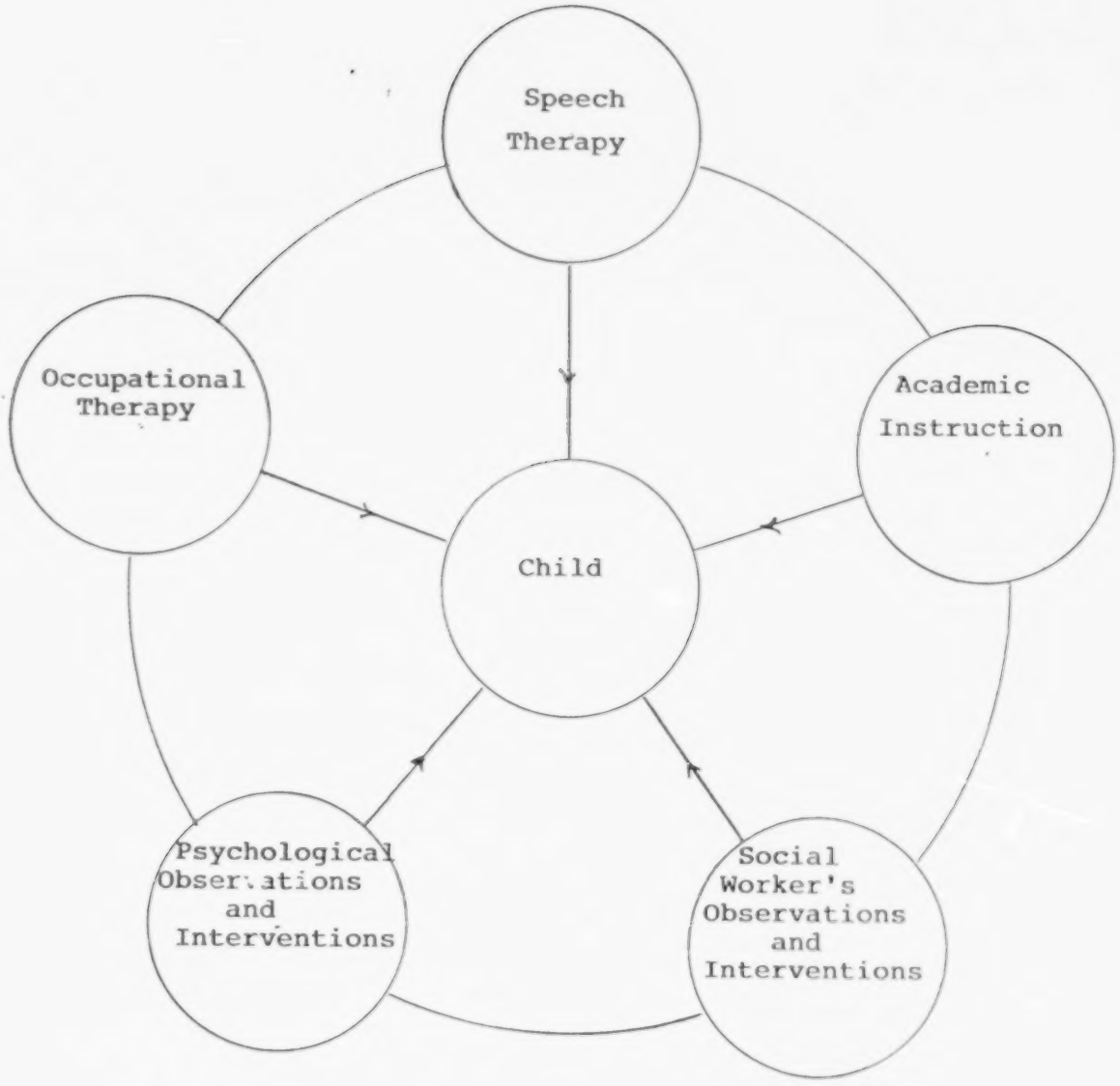


Figure 1:
Services to the Child in an Intervention Model

speech therapist, occupational therapist, psychologist and social worker formulate the intervention jointly for each child.

The Center's services are based on Schiefelbusch's (1978) social reinforcement model in which all those significant others who interact with the speech impaired child serve as models for developing the rules of expression and use of language for controlling the environment. Following the model, strategies for reinforcing verbal productions of the children are devised consisting of offering feedback for the expansion of lexical semantic and syntactic structures, emphasizing the use of acquired language and shaping language skills that are being built. The behavioral and ecological models of reinforcement have been incorporated to promote acquisition and use of linguistic structures. Through periodic evaluations of the children's development in several areas including speech-language, their progress is assessed and services are tailored to their needs. Regular meetings with parents in which they are instructed to assist the children in practicing specific tasks are emphasized to insure parents participation and extend the learning experience to the home. Once their progress has achieved and adequate level for integrating them into regular classrooms the children are referred to the Department of Public Instruction and are mainstreamed. Since 1984, a Regular Preschool Center was established at the HUC, in which, once speech impaired children achieve an adequate communication level, they are integrated to a certain extent in activities with the regular group while continuing to receive services at the Special Education Center.

In order to be admitted to the Center, a child needs to go through the following steps. (Figure 2). He goes to the Special Education Registration Office of the Department of Instruction. From that office

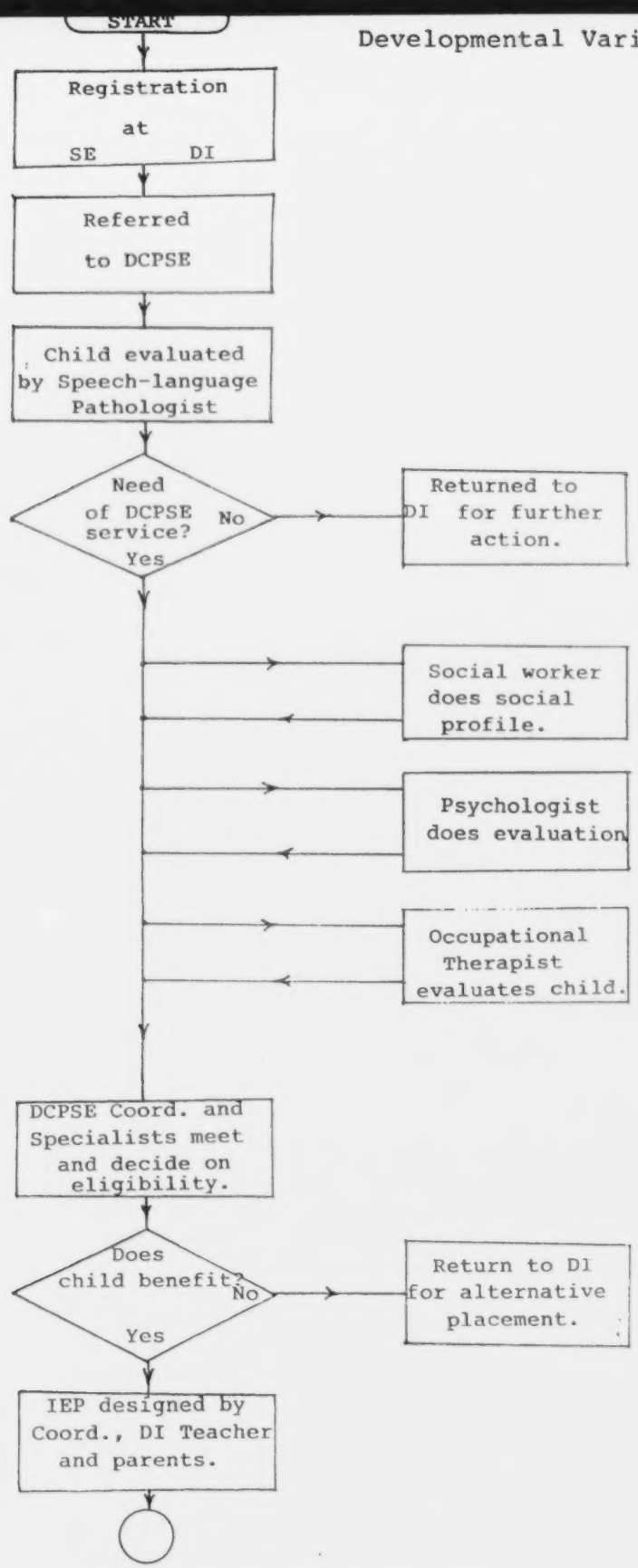


Figure 2: Flowchart Before Admission To DCPSE Process

he is referred to the DCPSE. At the Center he/she is evaluated by the speech pathologist who decides whether the child has a speech-language impairment and whether the impairment is mild, moderate or severe. If she finds out that the child does not need the DCPSE services, the child returns to the Department of Instruction (DI) for further action. But if the results of her evaluation indicates a severe impairment either in speech or speech-language, then the child is referred to the social worker who does a social profile, to the psychologist who does psychological evaluation and to the occupational therapist who also evaluates. All these professionals are also professor's at HUC. After all these evaluations, the DCPSE coordinator (who is also a professor of Education) and specialists meet and decide on the eligibility of the child. Again the question "¿Does the child benefit?" is raised. If all specialist decide that the child would benefit more from a regular classroom than from the Center, he is returned to DI for an alternative placement. If the child does benefit, the coordinator, a DI teacher and parents design an Individualized Educational Plan (IEP). According to the Law 94-142 of Special Education, the process just described cannot last more than thirty (30) days.

Once a child is placed at the Center, he starts receiving the services. (Figure 3). After a year of placement, his IEP is revised. If by that time he is eight years old, he leaves the Center even if he could benefit from more services. If the child is not eight years old and has not improved as expected, he continues receiving services for another year, his IEP goes for another revision at the end of that year. But if the child's speech-language improved, he leaves the DCPSE and is mainstreamed in the public or private schools of the island.

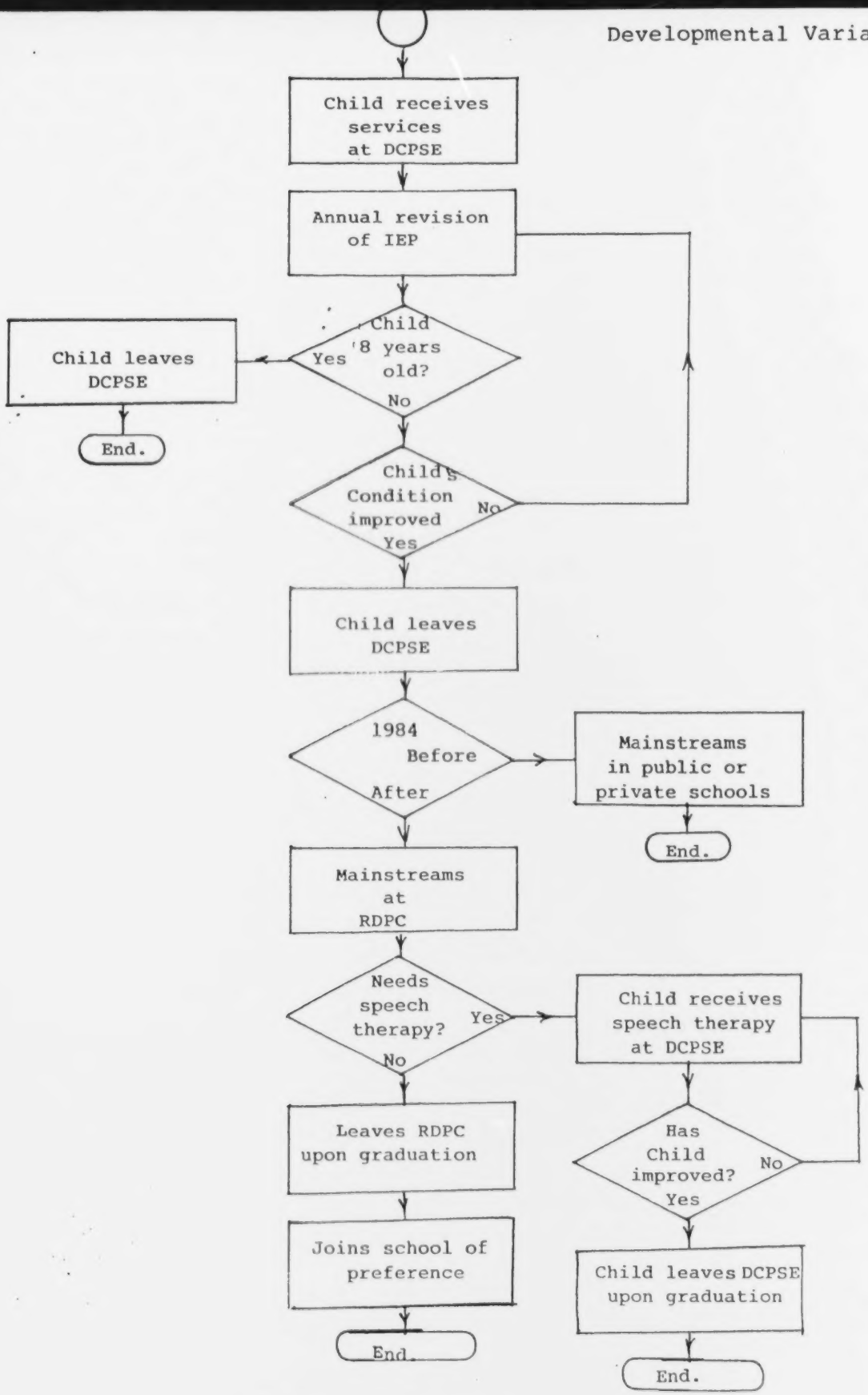


Figure 3: Flowchart of Process at DCPSE

In 1984, HUC established a Regular Demonstration Preschool Center besides the DCPSE. Its purpose was to provide to the DCPSE children with the least restrictive alternative. The children at the Regular Center are evaluated by the psychologist and observed by the pathologist to insure that they don't have neither a speech-language problem nor a psychological impairment. Intelligence Quotient scores (I.Q.) are obtained for all these children. The rationale is that if they are to become models to be imitated by the children at DCPSE, they must be at least normal in intelligence as those in the DCPSE and have no speech-language impairment.

A child who overcomes his speech-language problem is mainstreamed anytime during the year and at the end of the school year he/she leaves the RDPC upon graduation and joins public or private schools. On the other hand, a child may be mainstreamed for his academic and social activities but could continue to receive speech-language therapy at the DCPSE. He leaves the DCPSE when he has improved his condition.

Sample:

Case studies are developed for eight speech language impaired children. These children were randomly selected from the population of children that received services at the DCPSE. Five of these children have left the Center and three are still receiving services. Those five that left the Center are one girl and four boys of different ages now. Three are around eight years old and the other two are around nine and thirteen. Those three that are receiving services are between five and six years old. Of these three, two are boys.

One of the eight children in the sample had a profound sensorineural bilateral hearing loss. The other children had a severe speech language impairment not due to hearing loss. All of the children in the sample(8) or in the population (46) who attended the Center any time from 1980 to 1986, have "normal" intelligence.

The data studied for the total sample have been classified as follows: characteristics of the child before attending the Center (input), while attending the Center (process), upon leaving the Center (product), and after leaving the Center (follow-up). The follow-up was done for those children who have left the Center, five in the total sample.

The Instruments:

To answer questions related to children's input, process and product characteristics, children's records at the Center were analyzed. A speech-language evaluation instrument was designed and used in three ways: for categorizing speech language data on children's records, for evaluating the children receiving services at the Center and for evaluating those that had left the Center in the follow-up stage. This procedure would insure uniformity in the speech language data for all children in the sample. Examples of areas evaluated are: semantics (pictures were presented to the child and questions were raised related to what was happening in the picture), syntax and morphology (spontaneous language sample is analyzed to find out if the child is using correct syntax and morphology.

To measure socio emotional characterists, the social history in the children's records was analyzed. The researchers had the following questions in mind while going through the records: Is there any self-esteem or socialization problem in these children; How do these children relate to their peers? How are these socio emotional characteristics related to speech language? Is there any problem with their daily living skills?

The following instruments were used for collecting data that could help to anwer these questions:

1. Sociometry matrix and sociograms for three questions for each subject of study. The questions are: who would you invite to your house, who would you like to paint with; who would you lend your toys. The children were asked to write in a

paper the names of two of their classmates in order of preference. (See appendix 1 for questions and appendix 2 and 3 for example of sociogram and sociometry).

The sociometry data helped to determine if the child was a star in his group, an isolate or not an isolate.

2. Vineland Adaptive Behavior Scales (Sparrow Balla and Cicchetti (1984). This construct is defined by its authors as "the performance of the daily activities required for personal and social sufficiency". According to the authors, the three principles inherent in the definition of adaptive behavior are: Firt, Adaptive bahavior is age-related, (that is, in most individuals, adaptive behavior increases and becomes more complex as an individual grows older). Second, adaptive behavior is defined by the expectations or standards of other people. The adequacy on an individuals adaptive behavior is judged by those who live, work, and interact with the individual. Finally, adaptive behavior is define by typical performance, not ability. They also point out that the scales assess personal and social sufficiency of individuals from birth to adulthood, and are aplicable to handicapped and nonhandicapped individuals. There are three versions of the instrument: the Interview Edition, Survey form, the Interview Edition, Expanded Form; and the Classroom Edition. For this pilot study, it was used the interview Edition, Survey form because this one is already translated in the Spanish Language

which in the language of our subject's mothers. The children's mothers were the interviewed. The Vineland Scales measure adaptive behavior in four domains: communication, Daily Living Skills, Socialization, and Motor Skills.

3. Children's self-social constructs Tests, self social symbols tasks (Ziller, 1967). These test measure the following domains: self-esteem, social interest, identification (with particular others), group identification, egocentricity, power, complexity, minority identification, Realism for size, preference.

The discussion of the results follows.

DISCUSSION OF RESULTS AND RECOMMENDATIONS

The results and discussion presented in this paper are for eight (8) of the 46 children to be used for the complete study. These are only partial results for various reasons. First, only eight children have been studied so far. Second, the procedure used has been case studies. We do not have statistical analysis for these data because this is not the total sample. Third, the recommendations to be given are based on a limited number of children and our interpretation does not have any statistical corroboration. We are aware of the fact that the applicability of our recommendations are affected by these factors. Nevertheless, we all know that case studies have the benefit of providing indepth analysis. Also, our sample of eight children is considered small by us because we want to study a large number. But, a sample of eight can be considered a good number. It was chosen at random and we have a complete analysis of each case.

First, we reviewed their records since the time they entered the DCPSE. This is, any year between 1980 to 1986. From their records we got their social medical history which includes audiometric, psychometric, neurological and perceptual motor tests results. We also got every piece of information which we considered significant in relation to their physical development. The sample was divided in two groups.

Insert Table 1 here

Table 1: Relation Between Years Enrolled in the DCPSE and Social Medical History

	YEARS ENROLLED IN THE DCPSE (___to___) No.	SOCIAL MEDICAL HISTORY				
		Audiometric	Neurological	Psychometric	Perceptual motor	Physical development
GROUP 1 (name, DOB)						
Ed (Mar 31 1979)	1983-86 (3)	*	-	-	-	*
GROUP 2 (name, DOB)						
Ma (Jan 13 1982)	1986- (1.3)	-	-	-	-	-
Bren (May 18 1974)	1980-81 (1)	-	-	*	*	-
Mi (Oct 15 1978)	1982-85 (3)	-	-	-	*	-
Ja (Sep 13 1978)	1982-86 (4)	-	-	-	*	-
Ju (Feb 25 1976)	1980-82 (2)	-	-	-	*	-
Edno (Apr 15 1982)	1986- (1.3)	-	-	CNT	*	-
Nel (Sep 3 1981)	1986- (1.3)	n/a	-	-		-

* Presence of difficulty
\- Absence of difficulty

The only child who has been in the DCPSE with hearing loss was studied alone. He had severe speech-language problems due to his profound sensorineural bilateral hearing loss. The other area in which he presented problems was in terms of his physical development. As is expected in some one with his type of hearing problems he has had recurrent ear infections and has been under antibiotics. His neurological, psychometric and perceptual motor tests results showed no evidence of problems in any of these areas. Ed's progress in terms of speech-language development was typical of a person with his type and severity of hearing loss.

Although he did not have any other related medical problems such as perceptual motor or intellectuality his speech-language improvement was affected by his hearing condition not to prevent a remarkably good progress. Also he did have a very good home environment stimulation. All his family including grandparents were involved in his speech-language therapy and academic responsibilities. He also participated in numerous social activities and experiences which gave him the opportunity to observe and review every piece of information learned either at school or at home.

The seven other children with severe speech-language problem not due to hearing loss or mental retardation were studied in the second group. In this group there were two girls and five boys. One of the girls had intellectual functioning below average, but not in the range to be considered mentally retarded.

She also had difficulty in perceptual motor abilities as diagnosed by our occupational therapist.

Insert Table 1 here

One of the five boys could not be tested to evaluate his intellectual functioning. Otherwise he has been functioning within normal limits and his behavior does not indicate any maladjustment problem. The other boys had psychometric test results either average or above average. When we analyzed their performance in the perceptual motor test we found that three of them showed difficulty in fine motor skills, laterality, spatial position, visual-motor integration or difficulty in recognizing and coping geometric figures. The severity of their difficulty was classified as moderate. None of the children in the group presented physical development problems.

When we reviewed the records of Bren, Edno and Mi, the three children with perceptual-motor difficulties, and their speech-language development we found that they did have problems in terms of positioning their oral structure in order to produce or imitate correct production of sounds. They needed more modeling and shaping to correctly produce the misarticulated sounds. We also noticed that once you taught them the correct production of a sound they did not show overgeneralization as easily as those who do not evidenced perceptual-motor problems. These results are similar to those found by Ayres (1981) with four minimal to severe aphasic children. She found positive results in a one year period. The

intervention period for our subjects was one to three years. Our interpretation was that since perceptual-motor abilities deal with sensory integrative functions at the sensory level it was not easy for them to learn peripheral activities such as muscular movement and then transfer obtained knowledge into speech activities in different contexts.

To measure adaptive behavior we used the Vineland Adaptive Behavior Scales (Sparrow et. al., 1984). These results are follow-up for Ed, Bren, Mi, Ju, Ja and in process for Ma, Edno and Nel.

Insert Table 2 here

When we analyzed the communication domain for Ed he showed communication skills to be moderately low with a stanine of 2. The results showed to be concordant with his condition of hearing loss. His major difficulty was in the expressive domain. His performance was adequate in the receptive and written sub domains.

These results are another piece of evidence that his hearing loss only affected the expressive part of the language, not fully comprehension and use of it. His major limitation is observed in his oral production of the form of language without affecting the semantics and pragmatics.

Of the children in the second group, Ja and Ju got adequate results in the communication domains and subdomains. These two boys left the DCPSE more than one year ago. These results then are evidence that after leaving the DCPSE they have been able to dominate their communication problems.

Table 2

Table 2: Stanines on the Vineland Adoptive Behavior Scales Domains

VINELAND ADAPTIVE BEHAVIOR SCALES DOMAINS (IN STANINES)													
COMMUNICATION			DAILY LIVING SKILLS			SOCIALIZATION			MOTOR SKILLS		ADAPTIVE BEHAVIOR
receptive	expressive	written	personal	domestic	community	interpersonal relationships	play and leisure time	coping skills	gross	fine	
2			6			4			n/a		3
adeq.	low	adeq.	adeq.	adeq.	adeq.	mo.lo.	adeq.	adeq.			adequate
2			5			2			5		3
mo.lo	mo.lo	mo.lo	mo.lo	adeq.	mo.hi	mo.lo	mo.lo	mo.lo	adeq.	adeq.	moderately low
1			2			1			n/a		1
adeq.	low	mo.lo	adeq.	adeq.	mo.lo	mo.lo	mo.lo	mo.lo			mild deficiency
1			5			8			n/a		3
mo.lo	low	mo.lo	adeq.	adeq.	adeq.	hi	hi	adeq.			adequate
3			4			5			n/a		3
adeq.	mo.lo	adeq.	mo.lo	mo.lo	adeq.	adeq.	hi	mo.lo			adequate
4			4			4			n/a		4
adeq.	adeq.	adeq.	adeq.	adeq.	adeq.	adeq.	adeq.	adeq.			adequate
1			1			1			1		1
lo	lo	adeq.	lo	adeq.	adeq.	lo	lo	adeq.	lo	lo	mild deficiency
1			1			1			1		1
lo	lo	lo	lo	adeq.	mo.lo	lo	lo	adeq.	lo	lo	moderate deficiency

Two of the other five children in the second group, Mi and Bren are enrolled in regular schools but still show some communication problems. Bren, who is 13 years old, is in a Montessori school and her teacher mentioned her difficulty in socialization and abstract thinking. In the Vineland she obtained a score of one and mild deficiency. She performed adequately in the receptive sub domain with her major difficulties being in the expressive and written sub domains. Her parents and teachers agree that she still needs language therapy, but the service is not available in her school. Mi is seven years old. He scored in the low level for the communication domain and obtained a stanine of 1.He presented difficulty in every communication sub domains. Mi receives language remediation lessons for 45 minutes every day and speech therapy for 45 minutes twice a week.

The other three children with deficiency in the communication domain, Ma, Nel and Edno are still enrolled in the DCPSE. Although they have surpassed part of their problem all of them receive speech therapy and are in the process of initiating mainstreaming. They have been enrolled in our program for about one year and three months.

Bren and Mi were enrolled in the DCPSE for one and three years respectively. Bren left the program still showing difficulties and was placed in a slow learners group and Mi's mother wanted her son to be enrolled in the regular program, we think because of personal and social reasons. She preferred her son to be in the regular stream and receiving speech therapy than having him

in a "disordered communication group".

In analyzing the Daily Living Skills and Socialization domains we found that Ed performed at an adequate level in both. When we analyzed the data for the second group, four of the seven children performed at an adequate level both in the Daily Living Skills and Socialization domains. This is not surprising at all since both areas are related. You need good personal, domestic and community skills if you are to succeed as a socialized individual with good interpersonal, play, and coping skills.

The remaining three children who are still in the DCPSE presented an adequate level in the Daily Living Skills domain but were deficient in the personal and community sub domains. We consider these two sub domains as important if you are to succeed in the socialization domain. These three subjects showed deficiency in the latter domain. These results indicate us that they still need to develop daily living skills at a less scale in order to be able to be proficient at a larger scale. In other words, they are still performing at a more close range and need to mature skills necessary to go into the regular mainstreaming completely.

The motor skills domain has norms only for individuals up to 5.11 years old. Therefore, we only have levels of performance for the three subjects in group 2 who are now enrolled in the DCPSE. They all performed at an adequate level. These results are not surprising since only Edno has perceptual-motor problems classified as moderate. In addition he receives occupational therapy and is progressing rapidly.

In the Adaptive Behavior Composite five out of the seven subjects in the second group showed deficiency levels. Four of them also showed deficiency in the Socialization and Daily Living Skills domains, which we consider are related. Even thou, Mi performed at a moderately low level in the Maladaptive Behavior Composite but did adequate in the Daily Living Skills and Socialization domains. When we look at the domains more carefully we see a relation between the performance in the Communication domain and the performance in this latter ones. We suggest that communication may affect not only socialization and daily living skills but also adaptive behavior itself.

To measure the perception of self esteem in relation to others we used the Children's Self Social Construct Tests (Ziller, 1967). These tests are divided into those for primary and preschool levels and those for adolescents.

Insert Table 3 here

The findings will be discussed first for those classified either in the preschool or primary level,and second those classified as adolescents.

The first test for preschool and primary was vertical esteem. All the subjects, except Nel, got a score to consider them as having high esteem. Nel scored average esteem. Greater esteem has been associated with identification with mother. Four of the subjects had greater identification with their mother and two did not. The two who did not scored high esteem thou. The one who

Table 3: Results on Children's Self-Social Constructs Tests and Sociometry

Table 3

	CHILDREN'S SELF- SOCIAL CONSTRUCTS TESTS- ZILLER (a) adolescent. (b) primary and preschool												SOCIOMETRY
	Vertical esteem (b)	Realism Size (b)	Preference (b)	Social interest (a) (b)	Identification with particular others (a) (b)	Complexity (a) (b)	Minority identification (a) (b)	Horizontal esteem (a)	Group identification (a)	Egocentricity (a)	Power (a)		
Ed	hi	rea	l-fr	1/1	l-f	2/3	lo						Q1=2 Q2=2 Q3=2
Ma	hi	unr	l-m	1/1	lo-f,mt,fr	1/3	aver						Q1=2 Q2=3 Q3=3
Bren				0/1	hi-t,f	3/3	hi	lo	lo	n/a	f		Q1=2 Q2=1 Q3=2
Mi	hi	rea	l-t	0/1	hi-f,mt	1/3	lo						Q1=3 Q2=2 Q3=2
Ja	hi	rea	n/a	1/1	lo-f,mt,fr	2/3	lo						Q1=2 Q2=2 Q3=2
Ju				0/1	hi-f,t	1/3	lo	aver	hi	n/a	p		Q1=2 Q2=2 Q3=2
Edno	hi	unr	l-f	1/1	hi-m,fr	1/3	lo						Q1=2 Q2=2 Q3=2
Nel	aver	unr	l-fr	1/1	hi-f,mt,fr	1/3	aver						Q1=3 Q=2 Q3=2

f= Father
t= Teacher
fr=Friends
m= Mother

scored average had high identification with father, mother, teacher and friends which were the possible alternatives. We inferred that maybe he has not identified himself with any particular person therefore he does not have a clear definition of himself either. The two subjects with high esteem but low identification with the possible alternatives, Ma and Ja, did not show a higher identification with their mother. However, higher placement of self which is synonymous of higher esteem has been related to higher status in the community, home or school and more mature behavior in school. Ma is not considered more mature according to her results in the Vineland although she got a high score. Ma showed deficiency in socialization. Ziller points out that in this case there is the probability that Ma will develop a more mature behavior because high esteem can be considered either as an antecedent or a consequent of high esteem. The two adolescents showed low and average esteem. None of them showed higher identification with their mother. When compared to their scores in the Socialization domain Bren scored at a level of mild deficiency and Ju at an adequate level of socialization.

We conclude then that esteem and socialization should be considered related and that esteem should not be considered as dependent upon identification with any particular person. This interpretation leaves out the possibility of thinking that self esteem is a step after self identification with key characters in children's lives. So far, there is evidence suggesting that good socialization might ensure good self esteem.

Realistic scores have been associated with higher level of intellectual skills, socioeconomic background and classroom behavior. We won't analyze our subjects results in relation to intellectual skills because all of them are in the average range. We can't also relate the results to socioeconomic background because this was not a variable under consideration. For the variable classroom behavior we will consider the scores in the Adaptive Behavior Composite part of the Vineland. Among the two groups three of the children showed realistic scores and two of them scored adequate in the Adaptive Behavior Composite. The third one scored moderately low compared to the other three subjects who got unrealistic scores. Except for Ed, who the hearing impaired child, the subjects who got unrealistic scores and/or deficiency in adaptive behavior also showed deficiency in the Communication domain. We concluded that there was more relation between realistic scores and communication than between realistic scores and adaptive behavior. A possible explanation being that communication affects the way a person viewed him/herself and the degree of adaptive behavior exhibited was related to difficulties in communication.

Insert Table 4 here

Preference has been showed to be greater for teacher and less for father among girls. Our girl Ma did not show preference for teacher, she showed it for mother instead. Those boys with father present showed greater preference for father than those with

Table 4: Relation Between Realistic Scores, Adaptive Behavior and Communication Scores

RELATION BETWEEN REALISTIC SCORES, ADAPTIVE BEHAVIOR AND COMMUNICATION SCORES

Subject's name	Realistic	Adaptive Behavior	Communication
Ed	Rea	Adequate	Mod. Lo
Ma	Unr	Mod. Lo	Deficient
Bren	n/a	Mild Def.	Deficient
Mi	Rea	Mod. Lo	Low
Ja	Rea	Adequate	Adequate
Ju	n/a	Adequate	Adequate
Edno	Unr	Mod. Lo	Deficient
Nel	Unr	Mod. Lo	Deficient

father absent. The only child in our sample with father absent is Nel who showed greater preference for friends. Those with father present did not show the tendency found by Ziller. We did not find any relation between preference and communication scores in the Vineland.

Higher scores in the social interest area appear to indicate more socially inclined people. For the greater majority of the subjects, seven out of eight, presence of social interest was related to good socialization skills but not to communication.

Complexity has been found to correlate with age. For most of our subjects, seven out of eight, we observed the tendency of complexity increasing with age. Subjects older than seven years scored two, except for Ju who was twelve and scored one, and the oldest subject Bren scoring three. There was not any relation between complexity scores and communication.

Minority identification has been found to be greater for boys than for girls. We did find this tendency in our sample. The boys scored either average (1), low (4) or absent (2) as opposed to the girls who scored average (1) and high (1). These findings suggest that our girls felt more "different" than our boys. Still, interpretation of findings in this area needs additional research. When comparing minority identification scores with communication we did not find any particular pattern, i.e. low scores indicating less communication problems.

In the group identification test our adolescent boy scored

high and our adolescent girl scored low. Ju scored high which could be considered as reflective of a less restrictive environment. The data is congruent with our cultural patterns where boys are allowed to be more by themselves than girls are. The higher score is also related to a more favorable self image. Both subjects scored average in self esteem and group identification or low in self esteem and low in group identification.

In the last test, power test, the girl identified the father as the person with more power and the boy identified the principal of the school as the one having more power. In the girl's case the finding is not surprising. First, in our culture father or male image tends to be considered as the one with much more authority. She wouldn't select the principal of her school, as the boy did, as being the one with more power because she is in a Montessori school and the system considers the staff of the school as the student's friends. This is the opposite for Ju who is in a more conservative school system where the school principal may be more demanding than parents themselves.

As an additional instrument to evaluate our sample we did sociometry for all of them. For each sociometry we asked three questions to the subject's classmates. The first question was: "Who would you like to paint with?", the second was: "Who would you lend your toys?", and the third was: "Who would you invite to your home?". The results for each subject were categorized in three groups: G1= isolate, G2= not isolate, and

G3= stars or more popular.

Insert Table 5 here

We divided the results in these three groups because we wanted to know if our children due to their communication handicapped, were rejected (G1), not rejected (G2) or highly accepted (G3). For question number one, 75% were non isolate and 25% were stars. For question number two 75% were non isolate, 12.5% isolate and 12.5% stars. And for question number three 87.5% were non isolate and 12.5% stars. In conclusion, we consider our children being accepted by their classmates.

To evaluate the subjects progress after being enrolled in the DCPSE we developed a form to gather information since they were admitted till they left the center, and a follow-up in the school they were currently enrolled.

Insert Tables 6, 7, 8

The subject in the first group, Ed, entered the DCPSE when he was three years old. By that time he had difficulty in all areas of speech and language. His major strength was in socialization. By the time he left the center in 1986 he had mastered most language areas although presenting difficulties in the speech area due to the hearing loss. When we evaluated him in 1987 we found that he has some of the articulation problems expected from his condition and language problems related to morphology and semantics as expected of the level of difficulty

Table 5: Sociometry Categorization of Speech-Language Impaired Children

SOCIOMETRY CATEGORIZATION OF SPEECH-LANGUAGE IMPAIRED CHILDREN

Subject's name	Question 1	Question 2	Question 3
Ed	2	2	2
Ma	2	3	3
Bren	2	1	2
Mi	3	2	2
Ja	2	2	2
Ju	2	2	2
Edno	2	2	2
Nel	3	2	2

Question 1: Who would you like to paint with?
Question 2: Who would like to lend your toys?
Question 3: Who would you invite to your home?

1= Isolate
2= Not isolate
3= Star

Table 6: Results on Initial Speech Language Evaluation

	SPEECH-LANGUAGE INITIAL EVALUATION																	
	SPEECH												LANGUAGE					
	ARTICULATION			VOICE			FLUENCY											
	Omissions	Substitutions	Distortions	Pitch	Quality	Loudness	Repetitions	Prolongations	Fixations	Insertions	Pauses	Secondary Movements	Phonology	Morphology	Syntax	Semantics	Pragmatics
Ed	*	*	*	*	*	*	Adequate						*	*	*	*		
Ma	*	*	*	Adequate			Adequate						*	*	*	*		
Bren	-	*	-	Adequate			Adequate						-	*	*	*		
Mi	CNT			CNT			CNT						*	CNT	*	*		
Ja	*	*	*	CNT			CNT						*	*	*	*		
Ju	*	*	*	Adequate			Adequate						-	*	-	*		
Edno	CNT			CNT			CNT						CNT			-		
Nel	*	*	*	Adequate			Adequate						*	*	-	*		

* Presence of difficulty
\- Absence of difficulty

Table 7: Results on Final Speech-Language Evaluation

	SPEECH-LANGUAGE FINAL EVALUATION																		
									SPEECH							LANGUAGE			
	ARTICULATION				VOICE			FLUENCY											
	Omissions	Substitutions	Distortions		Pitch	Quality	Loudness	Repetitions	Prolongations	Fixations	Insertions	Pauses	Secondary Movements			Phonology	Morphology	Syntax	Semantics
Ed	*	*	*		Adequate			Adequate								-	*	-	-
Ma	not available				Adequate			Adequate								not available			
Bren	*	*	*		Adequate			Adequate								-	*	-	*
Mi	*	*	*		Adequate			Adequate								Adequate			
Ja	*	-	-		Adequate			Adequate								-	-	-	-
Ju	-	-	*		Adequate			Adequate								Adequate			
Edno	not available				Adequate			Adequate								Adequate			
Nel	not available				Adequate			Adequate								not available			

* Presence of difficulty
\- Absence of difficulty

Table 8: Results on Follow-up Evaluation on Speech-Language

	SPEECH-LANGUAGE FOLLOW-UP EVALUATION																				
	SPEECH														LANGUAGE						
	ARTICULATION			VOICE			FLUENCY														
	Omissions	Substitutions	Distortions	Pitch	Quality	Loudness	Repetitions	Prolongations	Fixations	Insertions	Pauses	Secondary Movements			Phonology	Morphology	Syntax	Semantics	Pragmatics		
Ed	*	*	*	Adequate			Adequate								-	*	-	-	-		
Ma	not available			Adequate			Adequate								not available						
Bren	Adequate			Adequate			Adequate								-	-	-	*	-		
Mi	*	*	*	Adequate			Adequate								Adequate						
Ja	Adequate			Adequate			Adequate								*	*	*	*	*		
Ju	Adequate			Adequate			Adequate								-	*	-	-	-		
Edno	not available			Adequate			Adequate								not available						
Nel	not available			Adequate			Adequate								not available						

* Presence of difficulty
\- Absence of difficulty

imposed by his grade level. He is in a Montessori school and receiving 45 minutes of speech therapy twice a week.

Four of the seven subjects in the second group left the DCPSE and are enrolled in the regular mainstreaming. One of them, Mi is still receiving speech and language therapy after being in the DCPSE for three years. When he entered the program in 1981 his speech system consisted mostly of signs and gestures. His vocabulary consisted of two VCV word combinations for everything he was referring to. And this vocabulary limitation did not allow to get a profile of his articulation pattern. By the time he left the DCPSE he showed mild speech deficiency with language areas considered adequate to compete in the regular mainstream. Although he still evidenced some difficulty in terms of morphology. A year and a half later we did the follow up evaluation. He still presents some articulation errors, shows word finding problems and long term memory difficulties. Nevertheless, he has made good progress and has been initiated in reading.

Ja was in the DCPSE for four years and had to leave because he reached the maximum age possible to be in the program. When he was first evaluated in 1982 his speech was mostly jargon,echolalic episodes and lots of gestures and signs. When he left the program he had improved in conversation (4 out of 5) and length of utterances used (4 out of 5). By that time he had pragmatic problems. For example you had to segment a question if you wanted him to understand it and

answer it. Most of his answers were given in phrases and not in complete sentences. Ja presented problems in blends productions. His voice and fluency were adequate. By the time we did the follow up, five months after leaving the DCPSE, he presented difficulty in initiating and maintaining a conversation. These problems became more severe because he was adjusting to a new school and new classmates after being in the DCPSE and almost the same friends for four years. When Ja does not fully comprehend what he is being asked and has to answer he recurrs to jargon. But most of his speech are still phrases.

Ju was in the DCPSE for two years and was placed in a slow learners group. When he entered the DCPSE in 1980 his speech was mainly characterized by CV combinations. His language problems were mainly in the morphology and semantics areas. Most of his speech were isolate words and lots of gestures. By the time he left the Center in 1982 he had mastered all language areas. The difficulty he presented was in the correct production of words with three or more syllables. The follow up evaluation was done in 1987, five years after being enrolled in a slow learners group, showed adequate performance in the areas of articulation, voice and fluency. Nevertheless, he is presenting difficulties in the area of morphology. Specifically, with adjectives and synonyms. The school has a program to help children with problms in this area and he is taking part in it. His difficulty in morphology is a difficulty common to his peers also.

Bren is the only subject who was enrolled in the DCPSE for one year. When she started, her articulation problem was characterized by misarticulation of words with three or more syllables. Her language problems were in the area of morphology, syntax and semantics. When she left the program she presented problems when producing blends and was recommend to still receive speech therapy. Her semantics had improved, but not her syntax and morphology where she presented difficulty with plurals. At the time of the follow up evaluation, six years later, she had overcomed her speech and language problems except for the semantics. When she is asked information which requires such processes as inference and divergent thinking she needs help to segment the information and put it back in a coherent manner.

The other three subjects in the second group, Ma, Edno and Nel, are still enrolled in the DCPSE. Ma's initial evaluation presents her with articulation problems such as bilabials and nasals incorrectly produced. She presented episodes of jargon speech, difficulty with morphology, syntax and semantics. Nel's speech consisted mostly of the same articulation problems as Ma's and language problems in phonology, morphology and semantics mainly because of the limited vocabulary repertoire. Ed's speech was so unintelligible that we could not test his articulation errors. His language was mainly characterized by gestures accompanied by intonation to indicate questions. Most of his limited oral productions were CVC and vowels. These three have improved in the year and three months they have been participating

in the program. Two months ago they were partially mainstreamed. They will be evaluated by the end of May and there is a great possibility they will be in the Center for at least another year.

RECOMMENDATIONS

Our work has provided us enough information to give some recommendations that will help us and other people interested in the field of Special Education. From our findings we can recommend that:

Number one; when you have a child with severe speech-language and concurrent perceptual- motor difficulties you might have difficulty in generalizing correct speech production learned at school or after receiving speech intervention. Therefore be sure that the child gets help in the area of perceptual-motor development at the same time he/she is receiving therapy in speech-language.

Number two; good, rich and early experiences can compensate for hearing losses no matter the severity of the condition or if it is accompanied by other mild handicapping conditions such as perceptual-motor.

Number three; since we found a great relation between early experiences and high self esteem,it is highly recommended that good and rich experiences be provided. The early the best.

Number four; the Vineland Adaptive Behavior Scales turned out to be a good instrument to assess various development areas. It was also useful in comparing speech-language evaluations and sociometry results. Therefore, we suggest it should be administered at the beginning and end of each year for any child participating in an educational program. Our program will administer it to every child each August and May of

every year they are enrolled in the DCPSE starting May 1987. The twice a year administration of this test does not represent a hazard for the child because the test requires an adult to answer to the items and not the child himself.

Number five; don't let parents influence on you to let their child leave a program just because of "personal" and "social" reasons. Make them understand that every decision taken must be to help the child.

Number six; you can consider match daily living skills and socialization skills scores as a probable indicator of readiness to go into the regular mainstreaming.

Number seven; from our results we developed a model of an early intervention program. The purpose being to provide younger children and their parents with strategies to work in their children's language and prevent speech-language disorders at older ages.

Insert Diagram 1 here

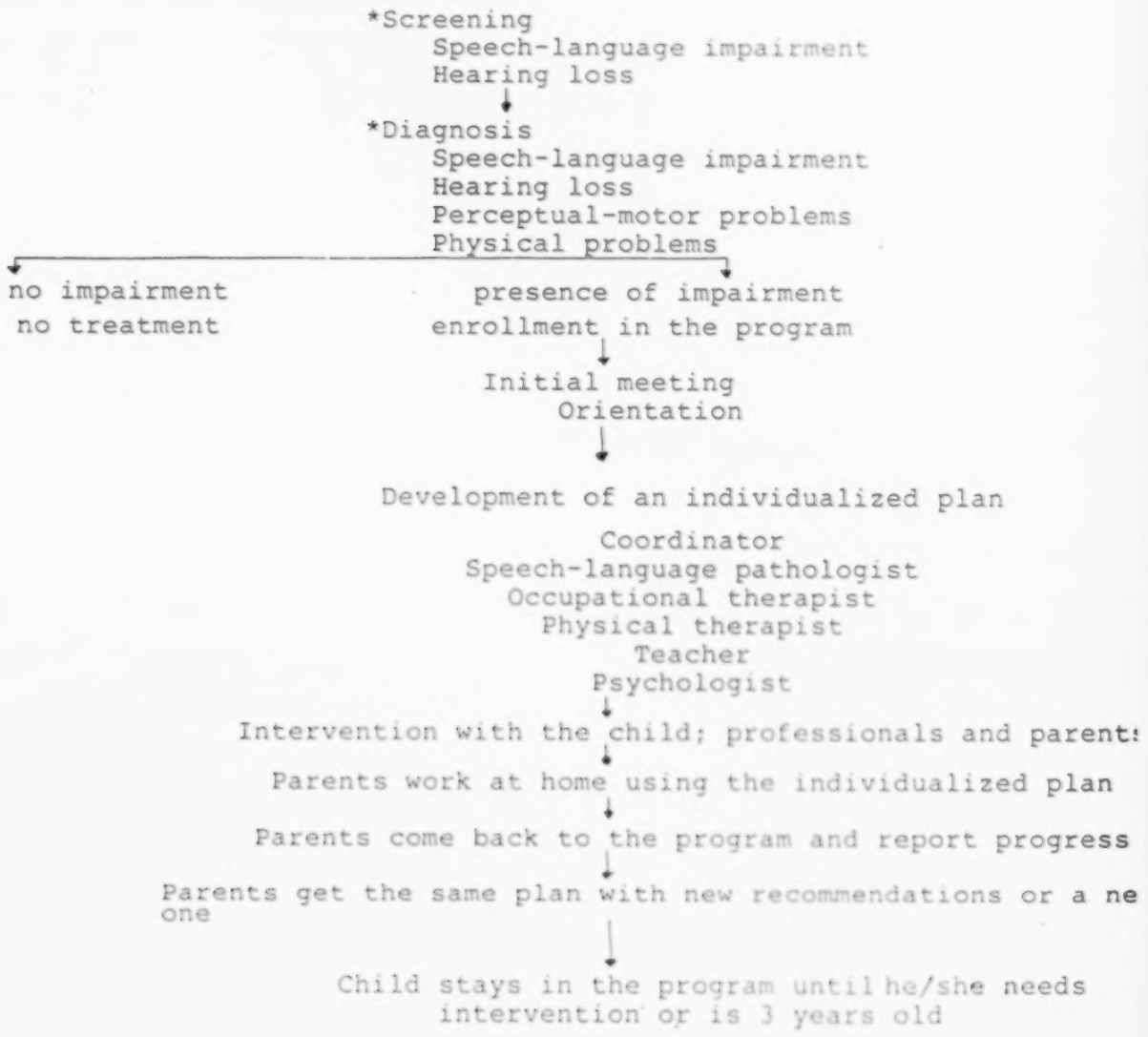
The program is designed for children one to three years old. The participants will be those children diagnosed as having speech-language problems and hearing impairment. To carry out the project we recommend to use the facilities and equipment of the DCPSE and the regular classroom.

The first step will consist of a screening to detect the presence either of s speech-language impairment, a hearing loss, and social medical factors that may be or have interfered with a normal speech-language development. The second step will be

Diagram 1

MODEL OF AN EARLY INTERVENTION PROGRAM

(1 to 3 years of age)



either not reeceive treatment because of no indication of a handicap, or proceed to a diagnostic evaluation that will add information on the perceptual-motor aspects of development and physical development as reflected by the occupational and physical therapists evaluations respectively.

The third step will be the enrollment of the child in the early intervention program. The program will start with an initial meeting to orientate the parents about the objectives and goals of the program including their participation in the implementation of the objectives. The staff of the program will include a speech-language pathologist, an occupational therapist, a physical therapist, a psychologist, a teacher and a coordinator. These people will prepare an individualized plan of intervention for each child. The objectives of each plan will be based on the strenghts and weaknesses shown in the evaluation.

The team will meet with the parents and their children every other week to work with them and demonstrate how to complete the activities designed for their particular child. After this meeting with every specialist the parents will take home the intervention plan. The plan will include activities for every day for a period of thirty minutes. The week next to each meeting the parents will carry out the plan at home. The week after they will come back to the program and will report their child's progress on each area (i.e. speech, language, psychology, etc.). They will be taught how to keep record of

their child's progress on a form that will be developed for each area in which the child has to complete any activity. In this meeting thay can also clarify any doubt thay might have had while doing their activities at home. They will also get the same plan with new recommendations or a new one. The children will participate in the program as long as they need it or until they reach the maximum age of three years.

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